

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
6 November 2003 (06.11.2003)

PCT

(10) International Publication Number  
WO 03/092255 A1

(51) International Patent Classification<sup>7</sup>: H04M 19/04

(21) International Application Number: PCT/EP03/03977

(22) International Filing Date: 16 April 2003 (16.04.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
02445053.8 25 April 2002 (25.04.2002) EP  
60/378,836 7 May 2002 (07.05.2002) US

(71) Applicant (for all designated States except US): SONY  
ERICSSON MOBILE COMMUNICATIONS AB  
[SE/SE]; S-221 88 Lund (SE).

(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(72) Inventor; and

(75) Inventor/Applicant (for US only): KÖRNER, Peter  
[SE/SE]; Nils Bjelkegatan 3a, S-222 20 Lund (SE).

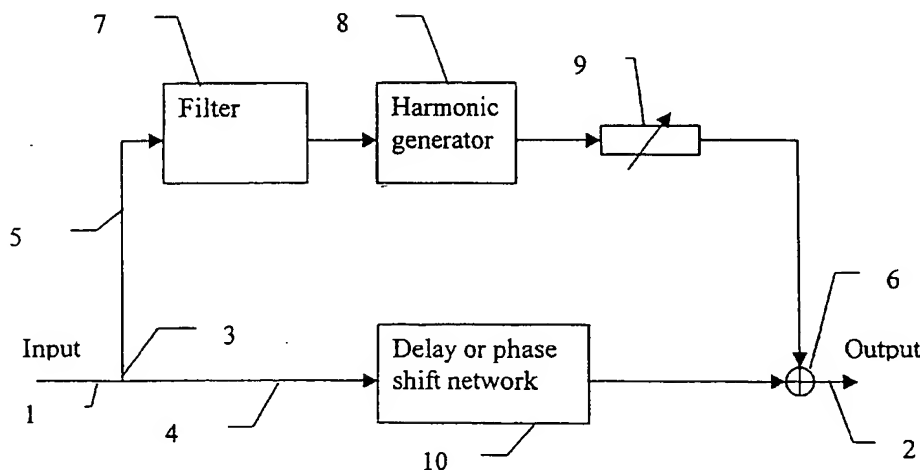
(74) Agents: AKERMAN, Mårten et al.; Albihs Malmö AB,  
P.O. Box 4289, S-203 14 Malmö (SE).

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: AUDIO BANDWIDTH EXTENDING SYSTEM AND METHOD



(57) Abstract: The invention relates to a virtual audio bandwidth extender, and more particularly a device for increasing the perceived bandwidth of audio signals in equipment having limited bandwidth, especially in mobile telephones. The invention also relates to a communication apparatus comprising such a device. The invention provides a device for increasing the perceived bandwidth in an audio signal path with limited bandwidth, comprising: an input terminal (1) for connecting an audio signal, and an output terminal (2) for connecting a speaker unit for generating an acoustic signal. According to the invention the device comprises a splitter (3) dividing the audio path into two branches, a first branch (4) for passing a part of the audio signal substantially without processing, and a second branch (5) for processing a part of the audio signal. The second branch comprises means for producing harmonics (7, 8, 9) of the audio signal. A combiner (6) is provided for adding the harmonics produced in the second branch to the part of the signal in the first branch at the output terminal. Thereby, the bandwidth is virtually extended resulting in enhanced quality of the audio signal.

WO 03/092255 A1